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EXAMINER	
DRUAN, THOMAS J	

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Paper No. 20040512

Application Number: 09/708,658
Filing Date: November 09, 2000
Appellant(s): BROMER, NICHOLAS SHEPPARD

Nick Bromer
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 23 February 2004.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

The rejection of claims 1-6 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

4,653,373	Gerber	3-1987
5,077,901	Warner	1-1992
1,607,083	Ignatieff	11-1926
5,630,275	Wexler	5-1997

"Roughness Height Table" in Machinery's Handbook 26th Edition, page 703

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by US 4,653,373 to Gerber. Gerber discloses the invention as claimed including a blade 10 comprising a thin plate 32 deposited on a specular surface of a substrate 30, wherein the substrate is beveled toward a cutting edge 40 that comprises the plate. The plate is on a single side of the blade, and is harder than the substrate (column 3, lines 16-20).

The substrate is made specular by use of a grinding wheel 43 (grinding creates a roughness as small as 500 Angstroms according to the included Roughness Height table). The plate has a thickness of 100 μin, which is on the order of a micron.

Claim 5 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Gerber in view of 5,077,901 to Warner et al. Gerber discloses the invention substantially as claimed, but uses a titanium nitride plate instead of a ceramic plate. Warner et al. teaches the use of a ceramic plate 70 deposited on a metal substrate 80 in order to provide a cutting edge that provides a hard, non-porous cutting edge (column 1, line 46 – column 2, line 9). Therefore, it would have been obvious to one skilled in the art at the time of the invention to make the plate of Gerber out of ceramic in order to provide a hard, non-porous cutting edge.

Claim 2 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Gerber in view of US 1,607,083 to Ignatieff. Gerber discloses the invention substantially as claimed, but lacks a substrate comprising a base portion of a first material and a surface portion of a second material that is harder than the first material and less hard than the plate material. Ignatieff teaches the use of multiple layers 5-11 of increasing hardness from the base portion to the cutting edge in order to correspond to the stress and wear of respective layers. Therefore, it would have been obvious to include multiple layers of hardness in the blade of Gerber in order to provide a gradient of appropriate materials to compensate for the increasing stress and wear of the blades layers as they approach the cutting edge.

Claims 3 and 4 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Gerber in view of Ignatieff in further view of US 5,630,275 to Wexler. Gerber in view of Ignatieff discloses the invention substantially as claimed, but lacks a second layer made of either chromium or glass. Wexler teaches the use of multiple layers of a blade comprising a variety of different materials, including chromium or glass (silicon dioxide) combined with other materials of differing hardnesses in order to provide enhanced durability (column 4, lines 32-67).

(11) Response to Argument

The first argument presented by the Appellant is that Gerber does not anticipate a thin plate deposited on a specular surface because Gerber grinds the side of the blade that is opposite the surface coating. While this may be true, it does not establish that the end product, which indeed has a specular surface. Column 2, line 68 – column 3, line 1 of the Gerber reference state that the base material forms faces 26 and 36 through "hollow grinding," which is a method like that shown in Fig. 5 of Gerber. Column 4, lines 52-55 state that using coarse grit on a grinding wheel will score the material being ground and produce a ragged or serrated cutting portion. Column 5, lines 51-54 describes how the hard plate takes on the shape of the surface onto which it is coated because it has a substantially uniform thickness, and shows a blade with a coating over scored areas in Figs. 7-9. Therefore, the desired smoothness of the cutting edge is limited by the coarsest grinding wheel used, either before or after coating. It must be true that the hollow ground surface upon which the thin plate is

deposited is specular because, otherwise, if a coarse grinding wheel were used to grind the faces 26 and 36, and then the faces were coated, and then one face were ground with a fine grinding wheel to expose the cutting edge 40, the cutting edge would still be ragged and serrated because the plate will be in the shape of the underlying surface. Thus, if a smooth cutting portion is desired, then the faces 26 and 36 must be hollow ground using a grit size that is at least as fine as the grit used to sharpen the blade. Since a fine grit grinding wheel is disclosed, the surface under the thin plate must be at least as specular as the face produced by the fine-grit grinding wheel.

The second argument presented by the Appellant is that a fine grit grinding wheel cannot be assumed to produce a specular surface. The Appellant defines "specular" on page 9, lines 16-21 of the specification which states "at least some reflected image is visible on a surface, but does not mean that the surface is polished or mirror-like –any surface on which any reflected image is at all visible is specular, and distortion in that image, no matter how much, will not prevent the surface from being 'specular'" [underlining by Examiner]. Also, the Appellant defines "light" to mean "visible light, ultraviolet light, and infrared light (near infrared and far infrared), by which images can be reflected in a specular fashion" (page 10, lines 6-8 of the specification) [underlining by Examiner]. Empirically speaking, the vast majority of knife blades, whether they are on kitchen knives or pocket knives or sporting knives, reflect at least some image. Anyone who has used a knife in a kitchen or opened a pocket knife has seen this. While the Appellant's definition of "specular" is quite broad and empirical evidence provides many examples of blades displaying a "specular" surface conforming to the

above definition, the Appellant has attempted to redefine "specular" according to an extrapolated graph in the cited Bennett & Mattson reference cited by the Appellant in the Brief (and in earlier Office Actions). Assuming, arguendo, that the extrapolation of the graph is correct, a beam of coherent light having a wavelength of .633 μm is completely scattered when shone substantially perpendicularly to a surface having a surface roughness of 500 Angstroms, or 0.05 μm. Appellant points out on page 3, lines 11-12 of the original specification that the wavelength of visible light ranges between 0.400 - 0.700 μm, which would indicate full scattering off of a surface having a roughnesses above and below the 500 Angstroms of the extrapolated Benett & Mattson graph depending on the specific wavelength of light. In rebuttal, it is to be noted that the Machinery's Handbook has been a principal reference in design and manufacturing facilities and colleges for over 85 years. Page 703 of the Machinery's Handbook displays a graph showing grinding to be capable of producing a surface roughness of 0.025 μm for a fine grinding wheel. Therefore, based on a plethora of empirical evidence, and the fact that the Machinery's Handbook shows that fine grinding produces a surface roughness that allows for reflection, it is clear that a fine grinding wheel is capable of producing a specular surface as defined in the Appellant's specification. The Board's attention is directed to the fact that the Machinery's Handbook is not an applied reference, but merely cited as rebuttal for the teaching of an inherent property much like a dictionary.

The Appellant argues that Gerber does not teach against either its "coarse" or "fine" grinding, and, therefore, does not suggest moving toward the fine end of a range.

Gerber teaches using a fine grit to "ensure uniform grinding and to provide the face 36 with a smooth surface" (column 3, lines 49-52). Since a smooth surface is desired, one skilled in the art would use the finest grit possible to achieve the smooth surface, which is inherently at the fine end of the range of grit sizes.

The Appellant's final argument is that a "crude" table taken from the Machinery's Handbook does not definitely show that grinding can produce a specular surface in light of the Appellant's extrapolation of the graph of Bennett and Mattsson. Firstly, the Bennett and Mattsson graph provides data for only three wavelengths of light. The definition of "specular" as provided by the Appellant includes images in the far infrared wavelengths which go to 350 μm. Using the line in the Bennett and Mattsson graph for a wavelength of 1.0 μm (which is in the near-infrared range), full scattering occurrs at 800 Angstroms (0.08 μm). Clearly a wavelength of 350 μm would fully scatter at a much greater surface roughness than that produced by even the coarsest of grinding. Thus, the table in the Machinery's Handbook, taken even with the largest grain of salt, provides data showing that grinding produces a surface capable of reflecting an image.

For the above reasons, it is believed that the rejections should be sustained.

37 CFR 1.132 Declarations

It is to be noted that the Appellant filed a declaration on 2/25/03 (attached to the end of Paper No. 14). This declaration is moot as it was filed primarily against the patent to Williams which was withdrawn before appeal.

A second declaration was filed on 5/5/03 (attached to the end of Paper No. 18). In it, Bennett and Mattsson was cited as further evidence against the now withdrawn patent to Williams. However, Appellant continued to cite Bennett and Mattsson against the present Gerber reference. While the declaration is believed to moot in view of Williams being withdrawn, to the extent it can be applicable against the present standing rejection, the arguments presented by the Examiner, above, rebut the declaration.

Respectfully submitted,

tjd
May 16, 2004

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